



Installation & Safety Instructions

TAG-6000-BP-X2

TAG-6000-XP-X2



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Document Number **405132** (See Last Page for Revision Details)

Based on drawing 404151-1.0

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1 Introduction

The TAG-6000 is an intrinsically safe active RFID tracking tag combining Wi-Fi and GPS to provide location data even in a sparse Wi-Fi deployment.

The intrinsically safe TAG-6000 is available in two variants:

- The TAG-6000-BP-X2 is a battery powered unit containing a LISOC₁₂ battery pack for long life operation.
- The TAG-6000-XP-X2 is an external powered tag with an intrinsically safe DC input. TAG-6000-XP-X2 variant has been approved under the Intrinsic Safety Entity concept allowing the interconnection of ATEX approved intrinsically safe supplies or barriers not specifically examined as a system.

2 Safety Information and Notes

2.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons who have to work on or with the device should be advised on where the manual is stored.

2.2 ATEX Special Conditions of Safe Use

The model TAG-6000-BP-X2 only can be powered with the battery packs TAC-637 manufactured by Extronics Ltd.

The enclosure is made from insulating plastic material and it includes a potential electrostatic charging hazard. The TAG-6000-*-X2 must be installed in a fixed installation and cleaned only with a damp cloth.

2.3 List of Notes

The notes supplied in this chapter provide information on the following.

- Danger / Warning.
 - Possible hazard to life or health.
- Caution
 - Possible damage to property.
- Important
 - Possible damage to enclosure, device or associated equipment.
- Information
 - Notes on the optimum use of the device

Warning The enclosure is made from electrically insulating plastic material. As such it is a potential electrostatic charging hazard. The TAG-6000 / iTAG102 must be installed in a fixed installation and cleaned only with a damp cloth

Warning The TAG-6000-BP-X2 / ITAG102-2-BP unit is battery powered and contains a parallel LiSOCl₂ pack, part number TAC-637. Replacement batteries should only be of the same type, supplied by Extronics and installed per the instructions in section xx (where xx is the relevant section)

Warning Do not open the enclosure where in a hazardous area is present.

Warning The battery pack shall only be replaced in a non-hazardous area

Warning While changing the battery pack be careful not to short circuit the battery terminals.

Warning When changing the battery pack, ensure that the connecting cables are free of the enclosure when being screwed back together, so as to avoid any possible damage to the cables. If damage occurs to the internal cabling whilst changing a battery pack do not return the unit to a hazardous area. It must be sent back to Extronics for inspection and repair.

Information The battery connector can only be connected in the correct polarity. Ensure the connectors are screwed together once the battery has been replaced

Warning For the TAG-6000-XP-X2 / ITAG102-2-XP, the connected intrinsically safe supply must be certified with Entity Parameters, connected and installed per the manufacturer's instructions.

Warning For the TAG-6000-XP-X2X2 / ITAG102-2-XP, the connected intrinsically safe supply Entity Parameters must meet the following requirements.

$$\begin{array}{lll} U_o & \leq U_i & (15.75V) \\ I_o & \leq I_i & (723mA) \\ P_o & \leq P_i & (2.84W) \\ L_o & \geq L_i + L_{cable} & (0H) + L_{cable} \\ C_o & \geq C_i + C_{cable} & (0F) + C_{cable} \end{array}$$

3 Installation and Setting-to-Work

3.1 Battery Replacement

Warning The TAG-6000-BP-X2 / ITAG102-2-BP unit is battery powered and contains a parallel LiSOCl_2 pack, part number TAC-637. Replacement batteries should only be of the same type, supplied by Extronics.

Warning Do not open the enclosure in a hazardous area

Warning The battery pack shall only be replaced in a non-hazardous area

3.1.1 Battery removal

1. Unscrew enclosure
2. Unscrew battery connector PCB
3. Push the battery pack up and out from the bottom of the enclosure
4. Pull apart the connector and remove the battery pack
5. Dispose of the battery pack in accordance with the regulations of the country the tag is being operated in



3.1.2 Battery replacement

1. Ensure the ATEX marked label is facing towards you when inserting the battery pack
2. Connect the battery connectors
3. Screw the battery connector PCB with the nylon screws
4. Push the battery pack in to the enclosure
5. Fasten the front and back of the tags together, route the lanyard and cables to prevent damage, or being caught in the enclosure
6. Screw together using the **torx** headed screws.



Warning While changing the battery pack be extremely careful not to short circuit the battery terminals.

Warning When changing the battery pack, ensure that the connecting cables are free of the enclosure when being screwed back together, so as to avoid any possible damage to the cables. If damage occurs to the internal cabling whilst changing a battery pack do not return the unit to a hazardous area. It must be sent back to Extronics for inspection and repair.

Information The battery connector can only be connected in the correct polarity. Ensure the connectors are screwed together once the battery has been replaced

3.2 TAG-6000-XP-X2 / ITAG102-2-XP Intrinsically safe supply Installation

The TAG-6000-XP-X2 / ITAG102-2-XP is an external powered tag with an intrinsically safe DC input. TAG-6000-XP-X2 / ITAG102-2-XP variant has been approved under the Intrinsic Safety Entity concept allowing the interconnection of ATEX certified intrinsically safe supplies or barriers not specifically examined as a system.

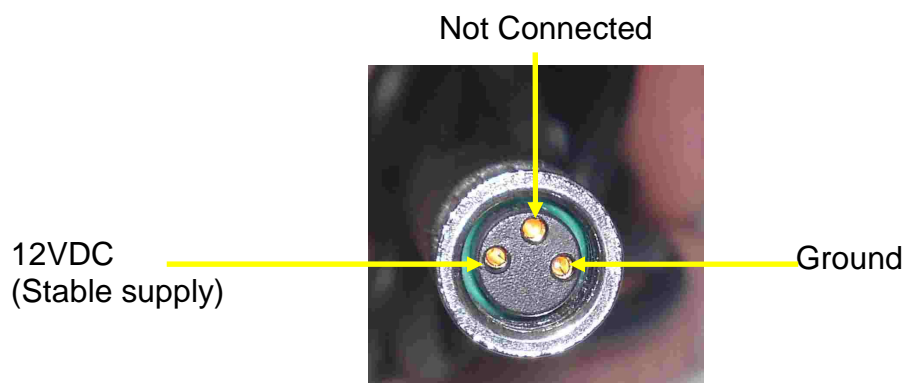
Warning	For the TAG-6000-XP-X2 / ITAG102-2-XP, the connected intrinsically safe supply must be ATEX Certified with Entity Parameters, connected and installed per the manufacturer's instructions.
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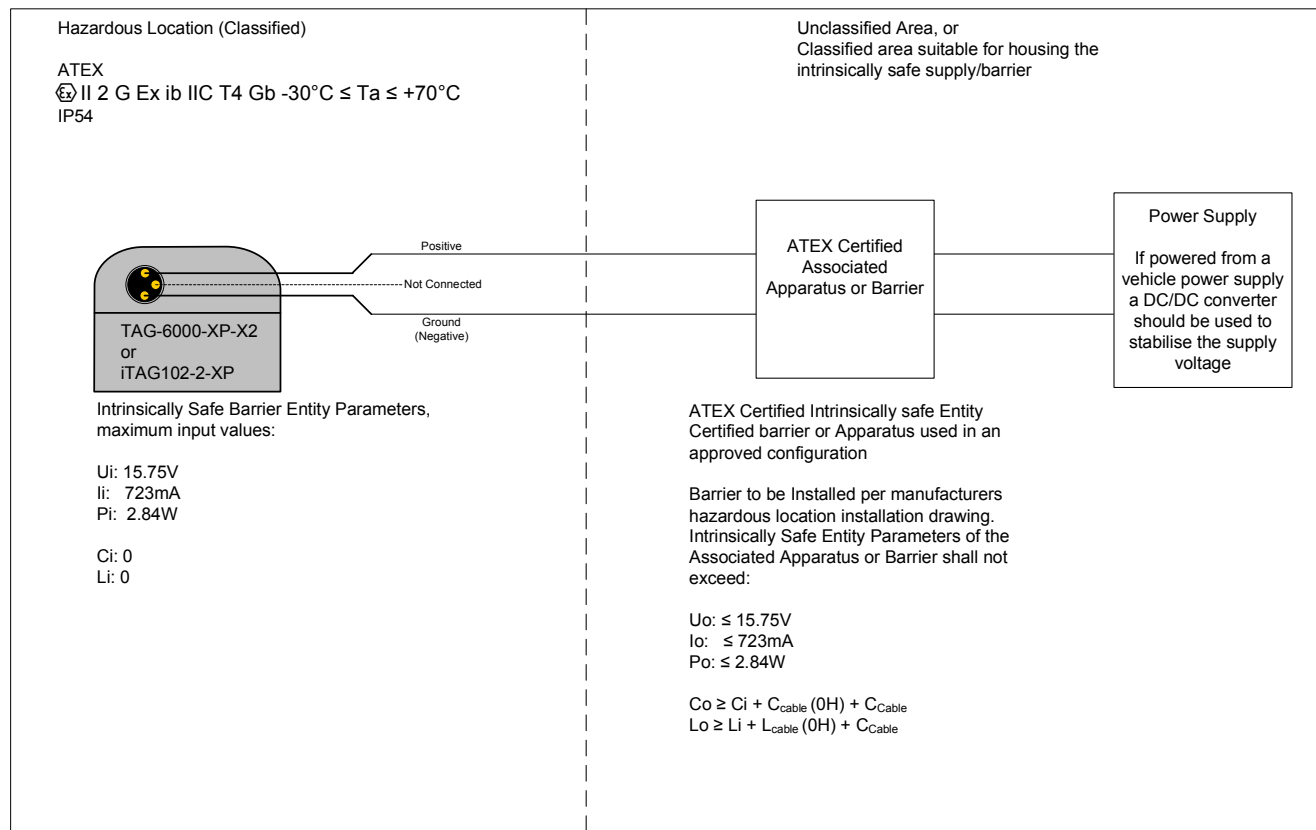
Warning	For the TAG-6000-XP-X2 / ITAG102-2-XP, the connected intrinsically safe supply Entity Parameters must meet the following requirements.
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U_o	$\leq U_i$	(15.75V)
I_o	$\leq I_i$	(723mA)
P_o	$\leq P_i$	(2.84W)
L_o	$\geq L_i + L_{cable}$	(0H) + L_{cable}
C_o	$\geq C_i + C_{cable}$	(0F) + C_{cable}




Warning	The TAG-6000-XP-X2 / ITAG102-2-XP must be installed as per Extronics control drawing 404152, repeated below
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Below is a diagram of the DC connector indicating its pin connections. Ensure the terminated cable is connected to the correct polarity.





ATEX CERTIFIED DOCUMENT
THIS DOCUMENT MUST NOT BE
MODIFIED WITHOUT PRIOR REFERENCE
TO THE NOTIFIED BODY

<div>PRIVATE & CONFIDENTIAL THIS DRAWING IS THE PROPERTY OF EXTRONICS LTD AND IS THE SUBJECT OF COPYRIGHT</div> <div>IT MAY NOT BE PRODUCED WITHOUT PERMISSION AND IS RETURNABLE ON DEMAND. INFORMATION CONTAINED THEREIN SHALL BE TREATED AS CONFIDENTIAL AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE FOR WHICH THE DRAWING WAS LOANED</div>	<div> Specialists for intrinsically safe & explosion proof equipment</div> <div><div>1 Dalton Way, Midpoint 18 Middlewich CW10 0HU E-mail: info@extronics.com TEL: +44 (0) 845 277 5000</div><div>FAX: +44 (0) 845 277 4000</div></div>	<div>TITLE</div> <div>TAG-6000 DC Variant ATEX Control Drawing</div>	<div>DRAWN BY</div> <div>AJR</div>	<div>APPROVED BY</div>	<div>SCALE</div> <div>NTS</div>	<div>SHEET No.</div> <div>SHT 1</div>	<div>REVISION</div> <div>1.0</div>	
			<div>FIRST ISSUE DATE</div> <div>02/05/2014</div>	<div>REVISION DATE</div>	<div>A3</div>	<div>OF 1</div>		
			<div>EXTRONICS PART No.</div>			<div>DRAWING No. 404152</div>		

3.3 Mounting

1. Position the tag on the asset in a vertical position allows reception of maximal satellite signal.



Attach the tag to the asset, using four screws.



4 Label Drawing

EXTRONICS TAG-6000-BP-X2
Middlewich, CW10 0HU, UK Serial:
Date:
CE XXXX Ex II 2 G TRAC14ATEX0029X
Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +58°C
Ex ib IIC T3 Gb -30°C ≤ Ta ≤ +70°C
WARNING – DO NOT OPEN WHEN AN
EXPLOSIVE ATMOSPHERE IS PRESENT
WARNING – BATTERIES MUST BE CHANGED IN
A NON-HAZARDOUS AREA ONLY
WARNING – POTENTIAL ELECTROSTATIC
CHARGING HAZARD – CLEAN ONLY WITH A
DAMP CLOTH

EXTRONICS iTAG102-2-BP
Middlewich, CW100HU, UK Serial:
Date:
CE XXXX Ex II 2 G TRAC14ATEX0029X
Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +58°C
Ex ib IIC T3 Gb -30°C ≤ Ta ≤ +70°C
WARNING – DO NOT OPEN WHEN AN
EXPLOSIVE ATMOSPHERE IS PRESENT
WARNING – BATTERIES MUST BE CHANGED IN
A NON-HAZARDOUS AREA ONLY
WARNING – POTENTIAL ELECTROSTATIC
CHARGING HAZARD – CLEAN ONLY WITH A
DAMP CLOTH

EXTRONICS TAG-6000-XP-X2
Middlewich, CW100HU, UK Serial:
Date:
CE XXXX Ex II 2 G TRAC14ATEX0029X
Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +70°C
Entity Concept Electrical Parameters
Ui: 15.75V, Ii: 723mA, Pi: 2.84W, Li: 0, Ci:0
Refer to Extronics Control Drawing No: 404152
WARNING – POTENTIAL ELECTROSTATIC
CHARGING HAZARD – CLEAN ONLY WITH A
DAMP CLOTH

EXTRONICS iTAG102-2-XP
Middlewich, CW100HU, UK Serial:
Date:
CE XXXX Ex II 2 G TRAC14ATEX0029X
Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +70°C
Entity Concept Electrical Parameters
Ui: 15.75V, Ii: 723mA, Pi: 2.84W, Li: 0, Ci:0
Refer to Extronics Control Drawing No: 404152
WARNING – POTENTIAL ELECTROSTATIC
CHARGING HAZARD – CLEAN ONLY WITH A
DAMP CLOTH

EXTRONICS Middlewich,
CW100HU, UK
TAC-637 - 3.6V 38Ah LI-SOCl₂ Battery Pack
USE ONLY ON:
TAG-6000-BP-X2 or iTAG102-2-BP
ONLY REMOVE/REPLACE BATTERY
PACK IN A NON-HAZARDOUS AREA ONLY
ONLY REPLACE BATTERY PACK WITH A
TAC-637 BATTERY PACK
ENSURE THIS LABEL IS VISIBLE
WHEN BATTERY PACK IS INSTALLED

Serial:
Date:

5 Repair and Replacements

The TAG-6000-XP-X1 / iTAG102-2-BP contain no user serviceable parts. Any faulty units should be sent back to Extronics for repair.

The TAG-6000-BP-X1 / iTAG102 has a user changeable battery pack. Only the battery pack may be changed by the user. Any other faults must be sent back to Extronics for repair.

New battery packs and product repairs can be obtained through:

Extronics Ltd
1 Dalton Way
Midpoint 18
Middlewich
Cheshire
CW10 0HU

6 Setting-to-Work

Refer to the Aeroscout documentation for software configuration and other advanced features.

7 Intended Purpose Usage

Important	Before setting the units to work, read the technical documentation carefully.
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Important	The latest version of the technical documentation or the corresponding technical supplements is valid in each case.
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The TAG-6000 is built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service. Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

7.1 Transportation and Storage

All TAG-6000 devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

7.2 Authorized Persons

Only persons trained for the purpose are authorized to handle the TAG-6000; they must be familiar with the unit and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

7.3 Cleaning and Maintenance

The TAG-6000 and all its components require no maintenance. All work on the TAG-6000 by personnel who are not expressly qualified for such activities will cause the Ex approval and the guarantee to become void.

7.4 Safety Precautions

Important	For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection.
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7.5 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

7.6 Aggressive substances and environments

The TAG-6000 is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

7.7 Exposure to external stresses

The TAG-6000 is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses.

The TAG-6000 will require additional protection if it is installed in a location where it may be subjected to damage.

8 Repair and Replacements

The TAG-6000-XP-X2 / iTAG102-2-BP contain no user serviceable parts. Any faulty units should be sent back to Extronics for repair.

The TAG-6000-BP-X2 / iTAG102 has a user changeable battery pack. Only the battery pack may be changed by the user. Any other faults must be sent back to Extronics for repair.

New battery packs and product repairs can be obtained through:

Extronics Ltd
1 Dalton Way
Midpoint 18
Middlewich
Cheshire
CW10 0HU

9 Technical Data

Wi-Fi RADIO

- Compliant with 802.11b/g networks (2.4 GHz)
- ⊗ Transmission power: up to +19dBm, ~81mW

GPS RECEIVER

- SIRF Single chip receiver GSC3E/LP
- ⊗ Tracking sensitivity: -158dbm

PHYSICAL AND MECHANICAL

- Dimensions: 100mm x 80mm x 55mm (3.9" x 3.1" x 2.2")

FUNCTIONALITY

- GPS coordinates are periodically sent over the Wi-Fi channel in pre-programmed intervals.
- Transmission interval is configurable.
- Built-in motion sensor enables more frequent transmissions when in motion and less frequent when not in motion.

ENVIRONMENTAL SPECIFICATIONS

- Temperature: -30° C to +75° C (-22° F to +167° F)

ELECTRICAL

- 2 x D lithium 3.6V battery pack (replaceable) –TAG-6000-BP-X1
- Battery life: up to 3 years (dependent on usage scenario and other factors)
- 12VDC entity parameter input – TAG-6000-XP-X1. Note input voltage must be stable, e.g. when using a supply from a vehicle a DC-DC must be used to stabilise the voltage

CERTIFICATIONS

- Radio:
 - FCC Part 15, sub-part C class B, sub-part B
 - EN 300-328, EN 301-489
- Safety:
 - CE, cTUVus (EN60950)

Safety and Warnings

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: a) Reorient or relocate the receiving antenna. b) Increase the separation between the equipment and receiver. c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected. d) Consult the dealer or an experienced radio/TV technician.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- a) This device may not cause harmful interference
- b) This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

WARNING: This device complies with Part 15 of the FCC Rules and RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

10 Type Codes

TAG6000-BP-X2	TAG6000 Battery powered unit
TAG6000-XP-X2	TAG6000 External DC powered with intrinsically safe inputs
TAC637	Replacement Battery Pack

11 Warranty Information

The Customer shall carry out a thorough inspection of the delivered project or equipment with 21 days of delivery and shall give immediate written notification to the Company of any omissions, defects or faults.

The Company warrants that the project or equipment delivered shall accord with the Quotation or Pricing Schedule and related Company specifications, but it does not warrant its fitness for any other purpose.

Extronics will make good, by repair or at Extronics option by the supply of a replacement, defects which, under proper use in accordance with specifications and manufacturer's instructions, appear in the goods within a period of twelve calendar months after the goods have been delivered and arise solely from faulty design, materials or workmanship, provided always that defective parts have been returned to Extronics if Extronics shall have so required.

The warranty of any goods is based upon a return to Extronics factory (Return to Base Warranty) which will be at the Customers cost. The repaired or new parts will be delivered by Extronics carriage paid. If you allege that goods are totally unfit for their purpose they must be returned within 7 days of receipt. Site Warranty is expressly excluded from these terms and conditions unless agreement is made in writing between the parties it.

Extronics liability under this clause shall be in lieu of any warranty or condition implied by law as to the quality or fitness for any particular purpose of the goods, and save as provided in this clause Extronics shall not be under any liability, whether in contract, or otherwise, in respect of defects in goods delivered or for any injury other (than personal injury caused by Extronics negligence as defined in Section 1 of the Unfair Contract Terms Act, 1977), damage or loss resulting from such defects or from any work done in connection therewith, provided however that nothing in this clause shall operate to exclude any warranty or condition implied by law as to the quality of the goods in the event that the goods when sold by you or when sold by any person or persons to whom you may sell the goods shall become the subject of a consumer sale as defined in the Supply of Goods (Implied Terms) Act, 1973 except that any claim under such warranty or condition shall have arisen from any act or omission by you or by any person or persons selling the goods by way of a consumer sale.

12 EC Declaration of Conformity



EC Declaration of Conformity

Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, Cheshire CW10 0HU, UK

Declare under sole responsibility that the following equipment types:

TAG-6000-BP-X2
iTAG102-2-BP
TAG-6000-XP-X2
iTAG102-2-XP

Are in conformity with the following relevant EC legislation:

Directive 94/9/EC Equipment and protective systems intended for use in potentially explosive Atmospheres (ATEX)

Provisions of the directive fulfilled by the equipment:

II 2 G

For TAG-6000-BP-X2 and iTAG102-2-BP

Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +58°C

Ex ib IIC T3 Gb -30°C ≤ Ta ≤ +70°C

For TAG-6000-XP-X2 and iTAG102-2-XP

Ex ib IIC T4 Gb -30°C ≤ Ta ≤ +70°C

Notified Body for EC-Type Examination:

TRaC Global Ltd 0891

EC-Type Examination Certificate:

TRAC14ATEX0029X

Notified Body for Production:

SIRA 0518 Chester UK

Harmonised Standards used:

EN 60079-0:2012	Explosive atmospheres - Part 0: Equipment - General requirements
EN 60079-11:2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

Other Standards and Specifications used:

None

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Document 405147-1.0

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Incorporated in England and Wales. Registration No. 3076287



Wireless



Vision



Engineering



Tracking

Directive 1999/5/EC

Radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

Harmonised Standards used:

EN300 330	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
EN300 328	Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
EN301 489	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services

Other Standards and Specifications used:

EN 60950	Information technology equipment. Safety. General requirements
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On behalf of Extronics Ltd, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

Signed

Andrew Robinson

Senior Development Engineer

Date: 15th May 2014

13 Manual Revision

Revision	Description	Date	By
1.0	Initial Release	15/05/2014	AJR